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## Statement of Work Contract Number: EP-W-11-009/EP-W-11-010/EP-W-11-011

RFO Number: 0036

I. TITLE: Enhancing Economic Resilience to Natural Hazards and Climate Change in Rhode Island

#### II. PERIOD OF PERFORMANCE:

From: Date of Award To: January 26, 2015

#### III. BACKGROUND:

The Office of Sustainable Communities (OSC) works with federal, state, local, and tribal governments, as well as nongovernmental and business organizations, to develop policies, regulations, standards, guidelines, models, tools, data, spending priorities, and technical assistance that support the Agency's mission by fostering outcomes in the built environment that protect environmental quality and public health and avoid disproportionate harm to disadvantaged communities. OSC develops and implements agency-wide and federal government-wide strategies to achieve the benefits of smarter growth and green building.

#### IV. PURPOSE AND OBJECTIVE:

The state of Rhode Island asked EPA for help under the Smart Growth Implementation Assistance Program to incorporate resilience to natural hazards and climate change into economic development planning, decision-making, and implementation. EPA is requesting contractor assistance with the following activities:

- Develop a tool that provides a framework for organizing and assessing potential impacts of natural hazards and climate change on local economic activity.
- Test and refine this tool in North Kingstown, RI.
- Help stakeholders in North Kingstown identify policy options for improving economic resilience and priorities for action.

EPA anticipates that these activities will benefit other Rhode Island communities and will result in a tool that other states and communities could use to improve their economic resilience to natural hazards and climate change. EPA is working with a group of partners, organized by Rhode Island Statewide Planning Program, with representatives from the state and North Kingstown. This group is referred to in this SOW as the Rhode Island team.

The work will focus on Rhode Island, which is engaged in a suite of initiatives aimed at strengthening the state and local economies. The state is writing a new economic development plan, and its cities and towns are seeking to build their economic development capacity. However, amidst all of these activities, little is being done to make jobs, revenues, and assets more resilient to natural hazards and climate change. Natural hazards already have a significant impact on the state's economy, and the impacts are anticipated to worsen over the next decades.

The town of North Kingstown, RI, will be the pilot site for the tool developed under this task order. North Kingstown is home to a variety of scales and sectors of economic activity, from the multi-use Quonset Business Park (which is the state's largest employer, housing 164 businesses and over 8,800 employees and the state's most active deep-water port) to historic Wickford village, where a variety of small businesses rely on tourism. In total, over 14,000 people work in North Kingstown, including 4,400 who work in manufacturing. In addition, the town is already piloting a climate change adaptation project with the University of Rhode Island's Coastal Resources Center-RI Sea Grant, so it is well-poised to use the information that this task order will generate. The lessons that will be learned in North Kingstown have significant opportunity to influence local and state economic development work, and the tool will be applicable to communities across the country.

Several projects underway in North Kingstown and Rhode Island are related to the work of this task order. Where relevant information is available, these related projects should be used to inform work under this task order. Projects are listed in Appendix A.

#### V. QUALITY ASSURANCE (QA) REQUIREMENTS

Check [ ] Yes if the following is required or [ X ] NO if the following is not required. The Contractor shall submit with their technical proposal a written Quality Assurance Project Plan for any project that is developing environmental measurements or a Quality Assurance Supplement to the Quality Management Plan for any project which generates environmental data using models.

TOPOs will provide additional information here, if **Yes** is checked above.

#### VI. TASKS AND DELIVERABLES:

The TOPO will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the TOPO's comments. Contractor shall provide the TOPO with copies of all deliverables as requested in the Task Order. The Contractor shall develop all written deliverables using the OSC Style Guide and technical assistance report guidance, which the TOPO will provide. Deliverables shall be submitted as Microsoft Word documents or in another format that can be easily edited by EPA. Deliverables shall be written in plain English, and all deliverables, including drafts, shall be proofread for errors before delivery to EPA. All deliverables must include appropriate citations with complete bibliographic information for all quotes, assertions, statistics, and other information that comes from a specific source. Any text that is a direct quote from another source must be in quotes and must be accurately cited. Any images used must have the image source and either written permission from the image owner for their use in the deliverable or, if they are in the public domain or under a free-use license, written proof that we are allowed to use the images without explicit permission.

Contractor personnel shall at all times identify themselves as Contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the Contractor shall not engage in

inherently governmental activities, including but not limited to actual determination of EPA policy and preparation of documents on EPA letterhead.

## **Task 1: Participate by Phone in Stakeholder Discussions** (Contract Reference: Page 1-17, II.B)

To help the Contractor prepare the tool, the Rhode Island team will organize stakeholder discussions shortly after the contract is awarded. These discussions will explore stakeholders' concerns and needs related to natural hazard impacts, including costs, transportation, utilities, and operations. They will help identify issues that are important to include in the tool developed under Task 2. The discussions will help clarify how well local stakeholders understand their vulnerability to natural hazards and climate change, as well as resilience options that have been implemented or are being considered. In addition, these discussions will serve to engage stakeholders early in the project, so they are more invested in the outcome. The Contractor shall participate in one conference call with EPA staff and the Rhode Island team to prepare for the stakeholder discussions. This call shall be scheduled within one week after the contract is awarded.

The Rhode Island team will schedule and run semi-structured stakeholder discussions. The Contractor shall participate in these discussions by phone. These discussions will take approximately 10-12 hours total.

# Task 2: Develop a Tool for Assessing the Potential Impacts of Hazards and Climate Change on Economic Activity, and Test the Tool Using North Kingstown as a Pilot (Contract Reference: Page 1-12, II.A.2)

The Contractor shall develop a tool that provides a framework for organizing and assessing potential impacts, both negative and positive, of natural hazards and climate change on local economic activity (defined as economic activity that occurs at establishments within a given geography). The Contractor shall determine the most effective format for the tool. Options can include a matrix/matrices-based approach, a mapping approach, or a hybrid approach. If a mapping approach is used, any Geographic Information Systems (GIS) layers that the Contractor creates shall be submitted, along with associated metadata, to Rhode Island's publicly accessible GIS database, RIGIS.

An effective tool will facilitate analysis; provide options for level of detail depending on available data; be scalable to the geographic boundaries of a municipality, region, or state; and allow consideration of multiple timeframes depending on available projections. The tool shall include:

- 1. Introductory text (approximately 1-2 pages) that explains the need for the tool, how to use the tool, and the methodology used to create it.
- 2. A method that organizes and assesses negative and positive impacts of climate change-relevant natural hazards on local economic activity.
  - a. Impacts on economic activity include, but are not limited to, impacts to industry assets like private property, public infrastructure, utilities, natural resources and ecosystem services (e.g., wetlands providing a protective buffer to the shore and nurseries for recreational and commercial

fisheries), built resources (e.g., historic districts in tourism-dependent areas), supply chains, and market demand. Impacts to supply chains and market demand might occur outside the geographic focus area but shall still be considered. The tool will then help users assess overall impacts to key outputs: profit, jobs, and tax revenue.

- b. Hazards to be considered shall include changes in precipitation (including drought and precipitation causing riverine flooding), storm surge, sea level rise, and extreme heat.
- c. The contractor shall use two climate scenarios, one for no more than 20 years into the future and the other for 50 to 70 years in the future. The difference in time scales is due to the variation in time scales used in different models. The scenario with the shorter timeframe will be more useful to businesses planning for the near future, while the longer timeframe will be useful for entities planning for the long term.
- 3. Clear instructions on how to use the tool at the municipality, region, and state scales.
- 4. A list of data inputs needed to use the tool and where to get these data.
- 5. A bibliography of resources.

The tool shall rely on publicly available data and resources so that it is replicable in other places, and it should be designed so that users can scale it up from the local to the regional level. The Contractor shall provide a list of data gaps that, if filled, would strengthen the tool (e.g., information about energy grid capacity, trends in freight transportation, etc.). The main users of the tool are likely to be economic development and land use professionals, but it should be understandable to a broad audience and meaningful to the private sector.

Development of the tool shall be informed by a literature search for relevant reports on the impacts of natural hazards and climate change on economic activity. Examples of such analyses include the Partnership for Resilience and Environmental Preparedness' *Value Chain Climate Resilience: A Guide to Managing Climate Impacts in Companies and Communities* and *Weathering the Storm: Building Business Resilience to Climate Change*, by the Center for Climate and Energy Solutions. EPA will provide the Contractor with any available scenarios and projections of climate impacts, using scenarios the state of Rhode Island is already using where possible.

Within one week after the stakeholder discussion, the Contractor shall participate in a conference call with EPA and key Rhode Island partners to ensure that the Contractor understands the parameters for the tool. The Contractor shall deliver a draft of the tool to the TOPO within 60 calendar days after the date of the stakeholder discussions from Task 1. The TOPO will review the draft in conjunction with the Rhode Island team and federal partners and will return edits and comments within 20 business days. After the TOPO returns edits and comments, the Contractor shall participate in another call with the TOPO and key partners in which participants will discuss comments on the draft tool and how the Contractor shall revise the tool in preparation for pilot testing in Task 3. The Contractor shall revise the tool and provide the TOPO with a revised draft of the tool within 10 business days.

Once the Contractor receives the TOPO's approval of the tool, the Contractor shall run the tool using North Kingstown as a pilot. The TOPO will provide relevant data or information from local and state initiatives. The Contractor shall use that information in applying the tool to North Kingstown. The Contractor shall provide the results of the tool to the TOPO within 10 business days of receiving approval of the tool.

## Task 3: Identify Actionable Options for Improving Economic Resilience (Contract Reference: Page 1-12, II.A)

The Contractor shall develop a list of options for improving economic resilience that will be presented at the site visit and subsequently refined. These options shall clearly relate to the pilot findings of the tool. To encourage environmentally and fiscally sustainable development, options should align with or reinforce smart growth strategies and must not encourage dispersed, low-density development or cause negative environmental impacts.

The Contractor shall develop a preliminary list of 10-12 specific options, based on the results of the tool developed in Task 2, that public and private stakeholders can implement to improve economic resilience. The Contractor shall make a clear connection between the options and the results of piloting the tool for North Kingstown. Options shall fall into two categories, with five to six options under each category:

- 1. Community-level strategies that address the collective economic future of extremely vulnerable places (e.g., economic development strategies or infrastructure investment).
- 2. Strategies for businesses and commercial property owners (e.g., reduction of liability and risk, exploring and expanding business opportunities related to climate resilience).

#### Each option shall include:

- A description of the option (one to two paragraphs).
- Its main benefits and drawbacks (one to two paragraphs).
- An estimate of the potential costs (one paragraph).
- Two to three communities (or, for the private-sector options, businesses) that have used this option, if available, and the results they have seen, the entity that led the effort and other key actors, the funding source, and key barriers or lessons learned through the process (two paragraphs).
- A bibliography of resources consulted.

The Contractor shall deliver a conceptual list of the 10-12 options, which will include only a brief description of the options (approximately one paragraph each), to the TOPO within 15 business days after Task 2 is completed. The TOPO will review the list in conjunction with the Rhode Island team and other partners and will return comments within 5 business days. The Contractor shall deliver a draft list of the options, which includes all the information requested in the bulleted list above, within 15 business days after receiving feedback from the TOPO. The TOPO will review the list in conjunction with the Rhode Island team and other partners and will return comments and edits within 15 business days. The Contractor shall revise the list and provide the TOPO with a revised draft within 10 business days. The revised draft must be completed before the site visit in Task 4.

## Task 4: Present and Refine the Tool and the Resilience Options in the Town of North Kingstown (Contract Reference: Page 1-17, II.B)

The Contractor shall participate in a site visit to present the tool and the resilience options in North Kingstown. This pilot will provide an opportunity for the tool to be refined and validated, while also allowing North Kingstown to begin to understand the impacts of natural hazards and climate change on its economic resources.

The Contractor shall participate in a two-day site visit in North Kingstown (two full days of activities, excluding travel time). The site visit will be scheduled at a time that is mutually agreeable to the Contractor, EPA, and the Rhode Island team. The site visit will include a tour of North Kingstown to see locations that are economically important and locations that are particularly vulnerable to hazards, meetings with key stakeholders to discuss their issues related to this project, and a public workshop with a broad array of community and business interests. EPA and the Rhode Island team will be responsible for identifying and inviting stakeholders and organizing all meetings, the workshop, and the tour. The Contractor shall provide input on the agendas for the meetings and workshop via email or by phone in scheduled calls. The Contractor shall participate in two to three calls to plan the site visit. The first call shall be within two weeks after Task 2 is complete, the second call shall be two weeks before the site visit, and if a third call is needed, the TOPO will issue technical direction after determining the timing and purpose of the call.

#### During the site visit, the Contractor shall:

- 1. Present the results from applying the tool to North Kingstown. This presentation will inform the town's stakeholders and economic development actors about the extent of impacts that natural hazards and climate change are likely to have on the town's economic activity. The exact presentation will be determined through discussions with EPA and the Rhode Island team, but the Contractor shall be prepared to explain what the need for the tool is, how it was developed, and present the results from running the tool using data and information from North Kingstown.
- 2. Solicit feedback on the tool's outputs. This will enable the Contractor to assess the likely accuracy of the findings and the utility of the tool and make adjustments as needed to the final version of the tool.
- 3. Explore options for increasing local resilience to economic impacts. The Contractor shall use the list of options developed under Task 3 as the starting point for this discussion and will solicit additional options and changes to the preliminary options from stakeholders.
- 4. Lead a discussion to help stakeholders begin to determine which strategies are of highest priority to pursue. The Contractor shall begin the discussion by proposing a short list of potential prioritization criteria, such as which strategies are likely to have the greatest beneficial effect in improving resilience, which are most feasible in the short term, which are likely to leverage other sources of funding, and other considerations. After getting feedback on the criteria, the Contractor shall lead a trial prioritization exercise to identify high, medium, and low priority options for resilience. This ranked list will be an initial step; the Rhode Island team will continue to work with local stakeholders to refine the priority list after the site visit is over.

After the site visit, the Contractor shall participate in a conference call to summarize the feedback received on the tool and the pilot results.

#### **Task 5: Final Tool and Report** (Contract Reference: Page 1-12, II.A.2)

The Contractor shall prepare:

- A. A final version of the tool for assessing potential hazard and climate impacts on economic activity. The tool will be revised and finalized based on the experience gained in applying the draft tool to North Kingstown and the input gathered during the site visit.
- B. A user's guide to the tool that explains how the tool works, identifies where to find needed data and information, describes how to interpret the results, and gives guidance on how users can adapt the tool to include other geographies and climate change-relevant natural hazards.
- C. A 20- to 30-page report that describes how the tool was developed; summarizes the results of the North Kingstown pilot; explains how other communities could apply this tool; lists data gaps that, if filled, would strengthen the tool; and lists the options for economic resilience, finalized and prioritized based on the discussions in North Kingstown.

The TOPO will provide technical direction to determine whether these products will be packaged into one document or will be kept as separate documents and to determine the audiences for each product. The Contractor shall deliver an outline of the final report to EPA within 10 business days after the site visit. EPA will review the outline and provide comments to the contractor within 10 business days. The Contractor shall deliver a draft of the final report, the user's guide, and the tool within one month of receipt of EPA comments on the outline. EPA will revise the drafts and submit a final version of the report to the Contractor within four months. During this period, the Contractor shall be available, either by email or by phone, to answer questions and potentially do additional work to fill in gaps in the report. Additional work shall not exceed 10 hours.

Upon receipt, the Contractor shall complete copy edits, design, and layout of the final report, the user's guide, and the tool within 10 business days. The Contractor shall return the final versions of the products, with copy edits marked clearly, for EPA's approval. The TOPO will approve the final version or make additional changes and return it to the Contractor within 10 business days. The Contractor shall deliver the completed tool, user's guide, and report to EPA within 5 business days of EPA's final approval. The deliverables shall be delivered both in electronic, editable format (e.g., Word or Excel) and as 508-compliant PDFs.

#### VII. SCHEDULE FOR DELIVERABLES:

The contractor shall provide the following specific deliverables to the EPA TOPO:

	DELIVERABLE	FORM AND QUANTITY	SCHEDULE
Task 1A	Participate in a conference call with EPA and	One (1)	Within one week
	Rhode Island team	conference call	of contract award.
Task 1B	Participate in stakeholder discussions	Conference	To be scheduled
		calls; number	by Rhode Island

		and length to be determined, approx. 10-12 hours	team as soon as possible after contract award, but no earlier than 3 weeks after contract award (stakeholder discussions will not occur between December 15, 2013, and January 6, 2014)
Task 2A	Discussions with EPA and key Rhode Island partners:  1. Call to ensure that the Contractor understands the parameters for the tool.  2. Call in which participants will discuss comments on the draft tool and how the Contractor shall revise the tool in preparation for pilot testing in Task 3.	Two (2) conference calls	First call within one week after the stakeholder discussions. Second call to take place at the end of EPA's 20-day review period, before the Contractor starts work on the revision.
Task 2B	First draft of tool for assessing potential hazard and climate impacts on economic activity	One (1) electronic document	Within 60 calendar days of completion of stakeholder discussions in Task 1. EPA will return comments within 20 business days.
Task 2C	Revised draft tool that is ready for pilot testing	One (1) electronic document	10 business days after receipt of EPA edits to draft.
Task 2D	Results from running the tool with North Kingstown as a pilot	One (1) electronic document	10 business days after approval of draft tool
Task 3A	Conceptual list of 10-12 options to improve economic resilience (one paragraph per option)	One (1) electronic Word document	Within 15 business days of completion of Task 2. EPA will return comments in 5 business days.
Task 3B	Draft list of options to improve economic resilience, including all information requested in task description	One (1) electronic Word document	Within 15 business days after receiving EPA's

			comments from Task 3A. EPA will return comments within 15 business days.
Task 3C	Revised draft list of options to improve economic resilience	One (1) electronic Word document	Within 10 business days of receiving EPA's edits.
Task 4A	Discussions to plan the site visit	Two to three (2-3) conference calls, as needed	First call: within 2 weeks after Task 2 is complete. Second call: 2 weeks before the site visit. Third call (if needed): TBD
Task 4B	Site visit: Two-day site visit to include tour, meetings, and workshop	Participation in meetings, workshops, and tour; presentation and discussion on tool and options to improve economic resilience	Site visit date TBD based on participants' schedules, but no sooner than one month after Task 2 is completed.
Task 4C	Conference call to summarize and review feedback from the site visit about the tool and the pilot results	One (1) conference call	Within one week after the site visit ends
Task 5A	Outline of final report	One (1) electronic Word document	Within 10 business days after the site visit. EPA will review and provide comments within 10 business days.
Task 5B	Drafts of tool, user's guide, and final report – TOPO will issue technical direction to determine whether these will be combined into one document or will be separate documents.	One to three (1-3) electronic Word, Excel, or other editable document(s)	One month after receipt of EPA's comments on Task 5A. EPA will return a final version within four months.

Task 5C	Copy-edited and laid-out versions of the tool, user's guide, and final report	One to three (1-3) electronic Word, Excel, or other editable document(s)	Within 10 business days of receipt of EPA's version. EPA will return comments within 10 business days.
Task 5D	Final version of the tool, user's guide, and final report	One to three (1-3) electronic Word, Excel, or other editable document(s); One to three (1-3) 508- compliant PDF(s)	Within 5 business days of EPA's final approval

#### Appendix A: Related Projects Underway

Several projects underway in North Kingstown and Rhode Island are related to the work of this task order. Where relevant information is available, these related projects should be used to inform work under this task order.

#### A. Local Initiatives

#### • North Kingstown Climate Change Project – Phases 1 and 2

<u>Phase 1</u>. The University of Rhode Island (URI) Coastal Services Center/RI Sea Grant and URI Environmental Data Center have partnered with North Kingstown to pilot mapping sea level rise in the town. The Phase 1 findings determined what transportation assets and real property were likely to be inundated under several inundation scenarios, including 1, 3, 4, and 5 feet above mean higher high water and the storm surge of the hurricane of 1938. <u>Phase 2</u>. URI Coastal Services Center/RI Sea Grant is working with North Kingstown to integrate climate change into its comprehensive plan, which will be rewritten in the next year (*see below*, NK Comp Plan Rewrite). A fact sheet on this project can be found at:

http://seagrant.gso.uri.edu/z\_downloads/coast\_nk\_factsheet.pdf

#### • North Kingstown Marketing Study

The town of North Kingstown is in the process of contracting with a consultant to conduct a market analysis. The study will provide information about existing and future real estate market conditions, as well as look broadly at the consumer and producer markets in North Kingstown (including those located on Quonset Development Corporation land) and in the region. This study will also identify public infrastructure priorities and provide recommendations to the town on fostering economic growth.

#### • Transit-Oriented Development at Wickford Junction

North Kingstown is undertaking a study of transit-oriented development at the site of its new MBTA commuter rail stop, Wickford Junction, which connects North Kingstown to Providence and Boston.

#### North Kingstown Comprehensive Plan Rewrite

The town will be putting the comprehensive plan rewrite out to bid in summer 2013. The town anticipates a 12- to 18-month drafting and approval process. By state law, the comprehensive plan must address numerous topics including economic development, natural hazards, and climate changes.

#### **B.** State Initiatives

• Vulnerability of Rhode Island's Transportation Assets to Sea Level Rise Rhode Island Statewide Planning is undertaking a study to assess the exposure of all the state's coastal transportation facilities to inundation to sea level rise. Scenarios are likely to include 1, 3, and 5 feet of sea level rise. For a selected geographic subset of assets that will include North Kingstown, Statewide

Planning will be undertaking a desktop vulnerability study using the FHWA Climate Change & Extreme Weather Vulnerability Assessment Framework. This work is funded in part by FHWA as Statewide Planning is staff to Rhode Island's MPO. This project is currently underway and scheduled for completion in December 2013.

#### • RI Sustainable Communities

Rhode Island received a \$1.9 million Sustainable Communities grant from HUD to develop a regional plan. The three major deliverables of this grant are a new state economic development plan, a new state housing plan, and new mapping and guidance on designating "growth centers," all of which will substantively address social equity and disparities. Plan development for this project is underway and targeted for completion by summer 2014. Depending on project timelines, some of the results of this task order might be used to inform development of the new plans, particularly the economic development plan. More information is available on the project website: http://www.planning.ri.gov/statewideplanning/sustainable.

#### TetraTech/Department of Health

Through an EPA grant, the RI Department of Health contracted TetraTech to undertake modeling of several climate hazards and their potential impact on drinking water suppliers. As a result of this study, the state has maps of projected climate hazards, including drought, riverine flooding, sea level rise, coastal flooding, and hurricane surge and wind, for the years 2022, 2052, and 2084.

#### • Shoreline Change Special Area Management Plan (SAMP)

The Shoreline Change SAMP (a.k.a. the "Beach SAMP") is bringing state, federal, municipal, academic, and private-sector interests together to create a state management plan with solid, practical guidance for communities adapting to short-term and long-term shoreline change. The timeline for this project will be phased over the next few years as funding allows. The first phase will be on the South Shore of the state and is getting underway currently. Particularly relevant to this task order, the Beach SAMP will explore some of the fiscal concerns of towns in adapting to climate change, including potential loss of property tax revenue if development is restricted on the coast, and tradeoffs between protecting, realigning, or removing infrastructure. The Beach SAMP website offers presentations and other information: http://seagrant.gso.uri.edu/coast/beachsamp.html.

#### • Impacts of Climate Change on Health

The RI Department of Health received a grant from the Centers for Disease Control to study the impacts of climate change on health in Rhode Island. Of particular relevance to this task order, the Department of Health would like to include potential climate change impacts to jobs because income is a social determinant of health.

#### • RI Climate Change Commission

Rhode Island established a Climate Change Commission by legislation in 2010. The commission has met infrequently, but it provides a venue for organizing the work done by different parties on climate adaptation in Rhode Island.

#### C. Federal Initiatives

• The International Economic Development Council and the NADO Research Foundation have received several grants from the Economic Development Administration (EDA) to support training, technical assistance, and best practice research on economic resilience for communities and regions in the EDA Atlanta and Philadelphia regions affected by disasters during FY 2011 (October 2010 – September 2011). This timeframe includes 2010 flooding which caused significant economic and infrastructure losses.